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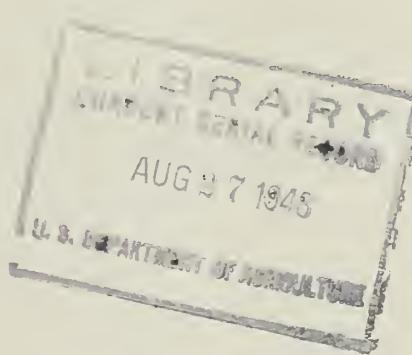
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# Estimating the Cost of Food for a School Lunch

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UNITED STATES DEPARTMENT OF AGRICULTURE  
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## COST OF FOOD FOR SCHOOL LUNCHES

Many more schools are starting school lunch programs today than ever before. This is partly due to an increased recognition that good nutrition is essential, especially for children. In addition, it is due to the Federal School Lunch Act of July 1946 which provides financial assistance for both food and equipment.

The cost of a school lunch is an important factor. It is important to the school and community starting a lunch program as well as to schools with a program in operation. Knowing food costs is essential to serving an adequate lunch within cost limits. It also aids in determining the amount that children should be charged for their lunches.

Food does not have to be expensive to be nutritionally adequate and acceptable to children. Excessive food costs or high charges for lunches may mean that some children cannot participate. Serving expensive lunches may mean that for part of the year none of the children will have lunches at school because funds are used up.

Because food costs make up a large portion of total cost, the following material is presented to aid schools in estimating the cost of food for a lunch program as well as to suggest simple methods for computing actual food costs in an established program.

### Estimating the Cost of a School Lunch

There are many factors that can affect the cost of food for a school lunch. Some of these are the kind, quantity and quality of food purchased, prevailing price levels, food available from school gardens and other low-cost sources, and the skill of the school lunch staff.

#### If you have no school lunch

A school lunch committee can get an estimate of probable food costs by pricing locally a list of suitable foods. Such a list is given here with quantities for one hundred 6- to 12-year-old children for one week (p. 6). The foods on this list meet the requirements for the Type A lunch as set up by the Food Distribution Programs Branch of the Production and Marketing Administration, United States Department of Agriculture. The Type A lunch allows for liberal quantities of fruits and vegetables, milk, eggs, and meat, the so-called protective foods which may be low in home diets. Quantities on page 6 provide on a daily basis, about a third of the 6- to 12-year-old child's needs of calories, from a third to a half of the protein, and about a half of the minerals and vitamins.

A week's lunches for the 13- to 18-year-old child will cost about a fifth more than lunches for the 6- to 12-year-old child. If the cost seems a little high, it is well to remember that these lunches are high in protective foods.

The usefulness of the list given on page 6, in estimating probable costs of Type A lunches, depends on whether these foods in these quantities are suitable for your community. The foods should be satisfactory for many school lunches because they are in line with the food habits of a large part of the country. One set of a week's menus possible from these quantities of foods, is shown below. You may, however, want to make some changes in this list to adapt it to your particular situation. For example, you may wish to use more corn meal, or to include fish once a week. Since it is important that you determine the cost of an adequate lunch, it is suggested that if you reduce the quantity of one food, you increase by the same amount the quantity of a similar food.

Sample Week's Menus for Type A Lunches Made from Foods  
Included on the Work Sheet on Page 6

Diced ham with scalloped potatoes		Liver and rice loaf
Buttered green beans		Cole slaw
Cornbread and butter or fortified margarine		Bread and butter or fortified margarine
Orange	Milk	Fruit (peach) blanc mange Milk (cornstarch pudding)
Navy bean soup (with milk)		Tomato juice
Cheese sandwich		Creamed eggs on toast
Baked apple	Milk	Green celery and raw turnip strips Stewed prunes Milk
Beef stew with vegetables		
Head lettuce salad, with dressing		
Bread and butter or fortified margarine		
Gingerbread		
Milk		

A plan for pricing should be carefully thought out before you proceed to get prices. Whether you should get prices for a pound, peck, or bushel may depend upon where you buy. Better prices can usually be obtained by purchasing food in large quantities and buying less often. The quantity to be purchased will be affected by such factors as the number of children to be served, distance to market, and available storage space. Try to obtain prices from the type of dealer that you expect to patronize and for the purchase units that seem best suited to your needs.

If you have a school lunch program

Even though you already have a school lunch you may wish to price this suggested list of foods. Pricing the list will give you an idea of how much the food for a school lunch would cost per child per week, when set up to meet Type A requirements with the relatively high level of protective foods.

On the following pages, directions and a work sheet are given for calculating the actual cost of food in your school lunch program. An example of a completed form and a table of conversion factors that may be needed in computing your food cost are also included.

Any food records and purchase slips you have can be used to supply prices and units. If you do not regularly use some of the suggested foods, obtain the prices from your dealer. If any of these foods are not suitable for your community, substitute an equal quantity of a similar food.

Your own food cost can be compared with that which you have computed for the list of foods on page 6. If the cost of your school lunch is markedly below that of the priced list, it may be that your lunch is inadequate in the type, quantity, or quality of foods used. If your cost is higher, you may need to purchase less expensive foods which are equally high in nutritive value. Food waste from preparing too large quantities may also be a cause of high costs.

TABLE 1.--COMMON UNITS OF PURCHASE AND THEIR EQUIVALENTS IN WEIGHTS OR MEASURES, FOR FOODS ON THE WORK SHEET

Commodity	Unit	Approximate equivalent	Commodity	Unit	Approximate equivalent
Evaporated milk	1-1 $\frac{1}{2}$ oz. can	4/5 quart fluid milk	Apples	1 peck 1 bushel 1 box	12 pounds 48 pounds 44 pounds
Dried whole milk	1 lb.	3.7 quart fluid milk	Commercially canned fruits and vegetables	1 #10 can 1 case #10 cans 1 #2 $\frac{1}{2}$ can 1 case #2 $\frac{1}{2}$ cans 1 #2 can 1 case #2 cans	6.62 pounds 6 cans or 40 pounds 1.75 pounds 24 cans or 42 pounds 1.25 pounds 24 cans or 30 pounds
Potatoes	1 peck 1 bushel	15 pounds 60 pounds	Tomato juice	1 #2 can 1 case #2 cans 1 #3 cyl. 1 case #3 cyl.	1.12 pounds 24 cans or 27 pounds 2.88 pounds 12 cyl. or 35 pounds
Oranges	1 dozen: Small Medium Large	3.7 pounds 5 pounds 7.70 pounds	Home canned fruits and vegetables	1 pint 1 quart 1 gallon	1 pound 2 pounds 8 pounds
	1 box: Florida Texas California	90 pounds 90 pounds 77 pounds	Eggs	1 crate	30 dozen
Carrots	1 bunch 1 bushel (without tops)	1 pound 50 pounds	Molasses	1 quart	3 pounds
	1 crate (bunched)	75 pounds			
Cabbage	1 head (medium) 1 $\frac{1}{2}$ bushel hamper or 1 sack	3.50 pounds 50 pounds			
Lettuce	1 head 1 crate	1.00 pounds 70 pounds			
Celery	1 bunch $\frac{1}{2}$ crate	1 pound 65 pounds			
Turnips	1 bunch 1 bushel (without tops)	1 pound 54 pounds			

## SAMPLE WORK SHEET FOR ESTIMATING COST OF FOOD FOR A WEEK'S SCHOOL LUNCHES FOR CHILDREN 6 TO 12 YEARS OF AGE

Date: November 20, 1945		School: Merry Land						
Filled by: Josephine Jonee		Address: Merry Land			Marvin County		Georgia	
		City or town			County		State	
Food (1)	Unit purchased and its price (2)	Price per unit specified below (3)	Suggested quantities per 100 children per week (4)	Cost (3) x (4) (5)	Type of dealer or other source Whole- sale or farm (6)	Re- tail (7)	Con- tribu- tion (8)	Additional information (9)
<u>Milk</u>								
Milk, whole.....	\$0.045 per $\frac{1}{2}$ pt. .15 per qt.	\$0.045 $\frac{1}{2}$ pt. .15	500 $\frac{1}{2}$ pt. 45 qt.	\$22.50 6.75	✓ ✓			Pasteurized "
<u>Meat, fish, eggs, cheese, beans</u>								
Beef, chuck.....	.27 per lb.	.27 lb.	15 lb.	4.05	✓			
Liver.....	.35 per lb.	.35 lb.	13 lb.	4.55	✓			Beef
Ham, whole.....	.33 per lb.	.33 lb.	15 lb.	4.95	✓			Smoked
Eggs.....	.58 per doz.	.58 doz.	11 doz.	6.38	✓			
Cheese.....	1.90 per 5 lb. pkg.	.38 lb.	5 lb.	1.90	✓			American
Dry beans.....	.11 per lb.	.11 lb.	8 lb.	.88	✓			Navy
<u>Vegetables, fruits</u>								
Potatoes.....	4.10 per 100 lb. bag U.S. #1	.04 lb.	60 lb.	2.40	✓			White
Oranges.....	.44 per doz.	.09 lb.	25 lb.	2.25	✓			
Tomato juice, canned.....	3.24 per case #10	.08 lb.	25 lb.	2.00	✓			
Carrots.....	.09 per lb.	.09 lb.	5 lb.	.45	✓			
Cabbage.....	.04 per lb.	.04 lb.	16 lb.	.64	✓			Green
Lettuce.....	.12 per lb.	.12 lb.	12 lb.	1.44	✓			
String beans, canned		0 lb.	25 lb.	0		✓		Canning center
Onions.....	.08 per lb.	.08 lb.	4 lb.	.32	✓			Yellow
Celery.....	.10 per lb.	.10 lb.	10 lb.	1.00	✓			
Turnipe.....	.10 per lb.	.10 lb.	10 lb.	1.00	✓			
Peaches, canned...	4.30 per case #10 25-30 halves per can	.11 lb.	13 lb.	1.43	✓			
Prunes.....	.15 per lb. Size 30 - 40	.15 lb.	10 lb.	1.50	✓			
Apples.....	.12 per lb.	.12 lb.	33 lb.	3.96	✓			Eating
<u>Bread and other cereal products</u>								
Bread, whole wheat	.10 per lb.	.10 lb.	30 lb.	3.00	✓			
Bread, white, enriched	.10 per lb.	.10 lb.	12 lb.	1.20	✓			
Flour, enriched...	.04 per lb.	.04 lb.	10 lb.	.40	✓			
Cornstarch.....	.10 per lb.	.10 lb.	2 lb.	.20	✓			
Cornmeal.....	.06 per lb.	.06 lb.	4 lb.	.24	✓			Yellow
Rice.....	.12 per lb.	.12 lb.	4 lb.	.48	✓			White
<u>Fats and oils</u>								
Butter.....	.53 per lb.	.53 lb.	6 lb.	3.18	✓			92 score
Shortening.....	.23 per lb.	.23 lb.	4 lb.	.92	✓			
Margarine.....	.24 per lb.	.24 lb.	7 lb.	1.68	✓			
Salad dressing....	.50 per qt.	.50 qt.	2 qt.	1.00	✓			
<u>Miscellaneous</u>								
Sugar.....	.06 per lb.	.06 lb.	10 lb.	.60	✓			Granulated
Molasses.....	.16 per 18 oz.	.14 lb.	6 lb.	.84	✓			
Accessories	xxx	xxx	xxx	1.00	✓			
A. Total cost				\$85.09				
B. Average cost per child 6-12 years per week. (Line A \$85.09 + 100)-----				.85				
C. Total weekly cost for children 6-12. (No. children served 400 X Line B \$0.85)-----				\$340.00				
D. Total cost of food for year. (Line C \$340.00 X No. of weeks in school year 36)-----				\$12,240.00				
E. Cost per child 6-12 years per meal. (Line B \$0.85 + 5)-----				\$0.17				



TABLE 1.--COMMON UNITS OF PURCHASE AND THEIR EQUIVALENTS IN WEIGHTS OR MEASURES, FOR FOODS ON THE WORK SHEET  
**HOW TO USE LOCAL PRICES IN ESTIMATING THE COST OF FOOD**

The work sheet below suggests a plan for pricing food for a week's school lunches for 100 children aged 6 to 12 years. Column 1 lists the food items to be priced. The quantities given in column 4 will meet the requirements of the type A lunch. An example to be used as a guide in filling out this work sheet is given on page 5.

**Column 2.**—Enter the unit in which you expect to buy or have been buying these foods, with the size and grade if available. If more than one size or grade is used, enter the one most often purchased. Enter the price per unit after all allowances for discounts have been made. Fill in only one price for each food item. For free food enter zero (0) in columns 2, 3, and 5 and a check in column 8.

**Column 3.**—Enter the price for the unit specified. Each line must have a price filled in except when the food is contributed. For some foods the price will be the same as that in column 2; for other foods a computation is needed. Table 1 gives some equivalent weights and measures to help you. For example, suppose you have purchased a case of No. 10 cans of peaches for \$4.30. Referring to table 1, you will find that a case of No.

10 cans of fruit weighs 40 pounds. The price per pound is  $\$4.30 \div 40 = 11$  cents.

**Column 5.**—Multiply the price per unit (column 3) by the number of units listed in column 4, and enter the result in column 5. Add column 5 to get the total cost for all foods.

**Columns 6, 7, 8.**—Make a check in columns 6, 7, or 8 for each food.

**Column 9.**—Write here pertinent facts describing the food. While this information is not needed for estimating cost, it may be helpful in understanding why your costs are especially high or low.

**Completing the estimates.**—In lines B and E at the bottom of the work sheets, compute the average food cost per week and per meal for 6- to 12-year-old children. To estimate weekly and yearly costs for your school, complete lines C and D. The cost of food for 13- to 18-year-old children will be about one-fifth more. Remember that this estimated cost does not include any allowance for equipment, labor, cleaning supplies, or utilities.

**WORK SHEET FOR ESTIMATING COST OF FOOD FOR A WEEK'S SCHOOL LUNCHES FOR CHILDREN 6 TO 12 YEARS OF AGE**

Date: _____		School: _____		Address: _____		City or town	County	State
Food	Unit purchased and its price	Price per unit specified below	Suggested quantities per 100 children per week	Cost (3) x (4)	Type of dealer or other source			Additional information
(1)	(2)	(3)	(4)	(5)	Whole-sale or farm	Re-tail	Con-tribu-tion	(9)
<u>Milk</u>								
Milk, whole.....			½ pt. qt.	500 ½ pt. 45 qt.				
<u>Meat, fish, eggs, cheese, beans</u>								
Beef, chuck.....			lb.	15 lb.				
Liver.....			lb.	13 lb.				
Ham, whole.....			lb.	15 lb.				
Eggs.....			doz.	11 doz.				
Cheese.....			lb.	5 lb.				
Dry beans.....			lb.	8 lb.				
<u>Vegetables, fruits</u>								
Potatoes.....			lb.	60 lb.				
Oranges.....			lb.	25 lb.				
Tomato juice, canned.....			lb.	25 lb.				
Carrots.....			lb.	5 lb.				
Cabbage.....			lb.	16 lb.				
Lettuce.....			lb.	12 lb.				
String beans, canned.....			lb.	25 lb.				
Onions.....			lb.	4 lb.				
Celery.....			lb.	10 lb.				
Turnips.....			lb.	10 lb.				
Peaches, canned...			lb.	13 lb.				
Prunes.....			lb.	10 lb.				
Apples.....			lb.	33 lb.				
<u>Bread and other cereal products</u>								
Bread, whole wheat			lb.	30 lb.				
Bread, white enriched.....			lb.	12 lb.				
Flour, enriched...			lb.	10 lb.				
Cornstarch.....			lb.	2 lb.				
Corn meal.....			lb.	4 lb.				
Rice.....			lb.	4 lb.				
<u>Fats and oils</u>								
Butter.....			lb.	6 lb.				
Shortening.....			lb.	4 lb.				
Margarine.....			lb.	7 lb.				
Salad dressing....			qt.	2 qt.				
<u>Miscellaneous</u>								
Sugar.....			lb.	10 lb.				
Molasses.....			lb.	6 lb.				
Accessories.....					\$1.00			
A. Total cost-----					\$			
B. Average cost per child 6-12 years per week. (Line A + 100)					\$			
C. Total weekly cost for children 6-12. (No. children served X line B.)-----					\$			
D. Total cost of food for year. (Line C \$ _____ X No. of weeks in school year _____)-----					\$			
E. Cost per child 6-12 years per meal (Line B + 5) -----					\$			

### Computing Actual Food Costs

Schools having records of actual food costs can compare them with the estimated costs for the foods listed on the work sheet or with costs common in other schools. Cost records are also of value as prices and food supplies or management changes. If the school lunch money must be stretched, many facts about food costs need to be studied. For this it will pay to keep some kind of systematic record. In fact, knowing food costs is a necessity to efficient management.

The most important fact needed is the food cost per meal. It is the basis for most comparisons. If the quantity of food on hand is small, the simplest way to get an approximate food cost per meal is to total all food purchases for a month and divide by the number of meals served. In smaller schools, computing costs for a shorter period, for example a week, gives a better check on any losses. A daily record of the number of meals served is necessary for all computations of per meal costs.

The inventory method of computing food costs per meal is outlined below. This method serves more purposes than the simple method of total expenditures divided by the number of meals.

The cost of a meal computed from recipe costs is useful as a check on the costs obtained from the inventory method. A method for computing recipe costs is explained in the last section.

#### The inventory method of computing food cost

A beginning inventory of the quantity and cost of all food on hand is taken. The purchase slips are kept and all purchases entered later on summary records. At the end of the period for which the cost is to be computed, an ending inventory is made of all food on hand. The cost of food per meal can then be computed as shown by the following example:

Beginning inventory, March 1	\$82.50
Cost of food purchased during March	<u>316.40</u>
 Total	\$398.90
Ending inventory, April 1	93.30
Cost of food used during March	\$305.60
Number of meals served during March	1,700
Cost per meal (\$305.60 + 1,700)	\$0.180

The ending inventory each time becomes the beginning inventory for the next period.

In some schools the manager likes to have the cost by groups of foods. This gives a better opportunity for studying costs than does a total cost alone. For example, if the cost of one group is rising faster than another, the foods within that group can be examined to determine the cause. Group totals can be compared with those obtained by using the work sheet and any marked variation investigated. When costs are to be obtained for groups of foods, both the inventory form and the form for recording purchases should be set up for classifying by food groups.

#### The inventory form

The simplest inventory form would be one that lists the quantities of foods on hand and their cost. The money value of food on hand can be computed and used to compare with a later inventory.

If costs are to be studied by food groups, the inventory may be taken using a separate sheet for each main food group. Foods may be grouped in any way desired. For example, a classification based on foods as designated for "Type A" lunch might be:

Meat, fish, cheese, eggs, dried peas, and beans  
Vegetables and fruit  
Milk  
Bread and cereal products  
Fats and oils  
Miscellaneous

The inventory should show number and size of units. These multiplied by cost per unit and added will give money value for each food group. The sum of all groups will give a total inventory value. Given below is a convenient form for the inventory sheet.

#### Physical Inventory

Merry Land School Cafeteria

Group classification Vegetables and fruit Date November 15, 1945

Food item	Brand	Quantity	Unit price	Total value
Peaches, canned	Golden	12 #10 cans	\$0.717	\$8.60

#### The form for recording purchases

The simplest record form for purchases to use with an unclassified inventory would be a list of all purchases of food and their cost.

If more information is desired about food groups, for example, the amount spent on milk products, separate record sheets similar to those set up for the inventory can be used for each group of foods. The purchases made during the period are entered on the appropriate sheet giving price per unit of purchase. Additional information, such as quality, grade, size, or place of purchase, often proves valuable in examining cost figures. Codes or abbreviations can be used for some of the descriptions to reduce the space needed.

#### The recipe method for computing food cost

The estimated costs for individual recipes are very useful in meal planning or for a day-to-day control of costs. Knowing recipe costs can aid in combining foods so that the total cost of a lunch, or the cost for a week will fall within a desired range. It will also show up expensive recipes that you may only want to use occasionally.

The recipe method has a disadvantage especially in a period when prices are changing a good deal. When this is happening, the cost of the recipes may have to be recalculated frequently in order to have up-to-date information on costs. Of course, some recalculation will be necessary to take care of seasonal price changes that occur normally. A record of such recalculations with price changes should be kept in a convenient form for permanent reference.

In this method, the total cost of each recipe and cost per portion are calculated. The simplest means of calculating the cost of a recipe is to allow columns for unit and total cost for each ingredient used. The total cost of all ingredients divided by the estimated number of portions the recipe will yield gives an approximate cost per portion. An example showing this method for obtaining cost of a recipe is as follows:

Meat loaf 1/	Portion: 4 ounces		
Ingredients	100 portions	Cost per unit	Cost
Beef, ground .....	16 lbs.	\$.274 per lb.	\$4.384
Pork, ground .....	5 lbs.	.349 per lb.	1.745
Salt .....	$\frac{1}{2}$ cup	.060 per lb.	.015
Onion, ground .....	1 $\frac{1}{2}$ cups	.080 per lb.	.060
Bread crumbs, coarse, dry..	1 $\frac{1}{2}$ gal.	.095 per lb.	.456
Eggs, beaten .....	10	.581 per doz.	.484
Milk.....	1 $\frac{1}{2}$ qts.	.150 per qt.	.225
Tomato juice .....	1 $\frac{1}{2}$ qts.	.583 per #10 can	.264
A. Total cost of recipe			\$7.633
B. Cost per portion			\$0.076

1/ November 1945 prices.

To determine the cost of a meal, costs could be taken from the recipe cards and combined as shown in the following illustration:

	Cost per portion <u>1/</u>
Meat loaf .....	\$0.076
Cabbage slaw .....	.020
Bread .....	.005
Butter .....	.011
Milk .....	.045
Canned peaches .....	<u>.028</u>
Total for meal per person ..	\$0.185

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1/ November 1945 prices.

Other school lunch publications available from the Information Branch, Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C.:

National school lunch program. PA-19, 4 pp. 1947.

Handbook for workers in school-lunch programs, with special reference to volunteer service. NFC-3, 30 pp. 1943.

Planning and equipping school lunchrooms. PA - 60, 23 pp., illus. 1946.

A yardstick for school lunches. PA-50, 30 pp. 1948.

School lunch facilities. One room school. 21 pp., illus. 1946. (Processed.)

School lunch facilities manual. One room school. (Four sheets of floor plans.) (Processed.)

School lunch facilities manual. Two to four class room school. (Six sheets of floor plans.) (Processed.)

Small equipment for the school lunch, 11 pp. 1948.

School lunch recipes for 100. PA-18, set of 77 5- by 8-inch recipe cards. 1946.

Quantities of food for serving school lunches, 18 pp. 1948.

School lunch recipes using potatoes. PA-36, 17 pp. 1948.

School lunch recipes using dried whole eggs, 9 pp. 1948.

School lunch recipes using nonfat dry milk. PA-44, 16 pp. 1948.

School lunch recipes using dried fruits. PA - 57, 16 pp. 1948.



